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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,120	03/23/2004	Tetsuo Yamada	107317-00063	2119

7590 12/28/2007  
ARENT FOX KINTNER PLOTKIN & KAHN, PLLC  
Suite 400  
1050 Connecticut Avenue, N.W.  
Washington, DC 20036-5339

EXAMINER
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MISLEH, JUSTIN P

ART UNIT	PAPER NUMBER
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2622

MAIL DATE	DELIVERY MODE
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12/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/806,120	Applicant(s) YAMADA, TETSUO	
	Examiner Justin P. Misleh	Art Unit 2622	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 18 is/are pending in the application.
- 4a) Of the above claim(s) 2 - 5 and 7 - 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6, and 15 - 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to Claims 1 and 6 have been considered but are moot in view of the new grounds of rejection. The Examiner accepts the amendments to the Abstract, Title and the drawings. Accordingly, the objections to the Abstract, Title and the drawings are now overcome.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 6, and 15 – 18** are rejected under 35 U.S.C. 102(e) as being anticipated by Mutoh et al. (US 7,176,972 B2).

4. For **Claim 1**, Mutoh et al. disclose, as shown in figure 3, an electric charge transfer apparatus, comprising:

a plurality of vertical charge transfer devices (37), each of which transfers a signal electric charge (F2);

a plurality of charge-discharging circuit sets (44 – see figure 2) formed next to each vertical transfer device (see figure 3), each charge-discharging circuit set (44) including at least two charge-discharging circuits (figure 2 shows at least four charge-discharging circuits – e.g., element 34 is a charge-discharging circuit) connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent the adjoining vertical transfer devices (The charge at element 37a in the vertical charge transfer device 37 is discharged via discharge gate 45 and discharge drain 43 – there are a plurality of 37a elements, a plurality of discharge gates 45, and a plurality of discharge drains 43 connected serially along each vertical charge transfer device 37); and

an output circuit (41) that outputs the signal electric charge transferred by the vertical charge transfer devices (37) to an outside of the electric charge transfer apparatus.

5. As for **Claim 15**, Mutoh et al. disclose, as shown in figure 2, a horizontal charge transfer device (39) formed at the lower end of the vertical charge transfer devices (37) and connected at one end thereof with the output circuit (41).

6. As for **Claim 16**, Mutoh et al. disclose, as shown in figure 2, wherein the horizontal charge transfer device (39) receives the signal electric charge in parallel from the plurality of vertical charge transfer circuits (37) and transfers the received signal electric charge in sequence to the output circuit (41).

7. As for **Claim 17**, Mutoh et al. disclose, as shown in figure 3, wherein a first of the at least two charge-discharging circuits (figure 2 shows at least four charge-discharging circuits – e.g., element 34 is a charge-discharging circuit) selectively discharge (via gate 45) the signal electric charge from the plurality of vertical charge transfer devices (The charge at element 37a in the

vertical charge transfer device 37 is discharged via discharge gate 45 and discharge drain 43 – there are a plurality of 37a elements, a plurality of discharge gates 45, and a plurality of discharge drains 43 connected serially along each vertical charge transfer device 37).

8. As for **Claim 18**, on basis that residual charge will always be left in the plurality of vertical charge transfer devices (37), the Examiner submits that each of the charge-discharging circuits will discharge some charge leftover from some other charge-discharging circuit connected serially therewith. Therefore, Mutoh et al. disclose wherein a second of the at least two charge-discharging circuits discharges the signal electric charge left after the discharging of the first charge-discharging circuit.

9. For **Claim 6**, Mutoh et al. disclose, as shown in figure 3, a solid-state imaging device, comprising:

- a semiconductor substrate (see figures 4 – 7);

- a plurality of photoelectric conversion elements (33) formed on said semiconductor substrate;

- a plurality of vertical charge transfer devices (37), which transfer signal electric charge (F2) photoelectric converted by said photoelectric conversion elements;

- a plurality of charge-discharging circuit sets (44 – see figure 2) formed next to each vertical transfer device (see figure 3), each charge-discharging circuit set (44) including at least two charge-discharging circuits (figure 2 shows at least four charge-discharging circuits – e.g., element 34 is a charge-discharging circuit) connected in a serial manner for discharging the signal electric charge transferred by at least one of adjacent the adjoining vertical transfer devices (The charge at element 37a in the vertical charge transfer device 37 is discharged via

discharge gate 45 and discharge drain 43 – there are a plurality of 37a elements, a plurality of discharge gates 45, and a plurality of discharge drains 43 connected serially along each vertical charge transfer device 37); and

an output circuit (41) that outputs the signal electric charge transferred by the vertical charge transfer devices (37) to an outside of the electric charge transfer apparatus.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lin Ye can be reached on 571.272.7372. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin Misleh  
Examiner, GAU 2622  
December 20, 2007

A handwritten signature in black ink, appearing to read 'Lin Ye', with a stylized flourish at the end.

**LIN YE**  
**SUPERVISORY PATENT EXAMINER**